

## Abstract

The invention relates to an ultrasonic flow sensor, particularly for measuring a volume flow or mass flow of a fluid (1), which includes two ultrasonic converters (A,B) that are offset in the direction of flow (2) and each transmit a periodic ultrasonic signal (S1,S2) to the other ultrasonic converter (B,A), and a control and evaluation unit (4) that detects several reception times ( $t_i', t_i''$ ) per ultrasonic signal (S1,S2) when an ultrasonic signal (S1,S2) is received by an ultrasonic converter (B,A), a measured quantity (S) being determined from one of the reception times ( $t_i', t_i''$ ). The accuracy of the measurement can be improved substantially when the control and evaluation unit (4) includes at least two counters (5a,5b), the first counter counting a period ( $\Delta t'$ ) from a first switchover/reception time ( $t_1'$ ) of a signal (S2,P) at least until the first reception time ( $t_1''$ ) of the ultrasonic signal (S1), and the second counter determining the time interval ( $\Delta t''$ ) between a first instant and a second instant out of several paired instants ( $t_i', t_i''$ ) of the signals (S1,S2,P).

Figure 6